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POPULATION PROJECTIONS
THE ZIMBABWEAN EXPERIENCE

ZIMBABWE EXPERIENCE IN POPULATION PROJECTIONS

Zimbabwe views the population component as one of the major elements of a socialist socio-economic planning process since development is a means for advancing society and improving the quality of life of the population. Population is the most important resource therefore development planning should take account of the population size, structure, composition and distribution not only of the present period but also at least of the near future. Projections are not only useful for planning purposes by the government but are also useful for private planners, market research analysis etc.

Zimbabwe has had two relatively recent and reliable de facto censuses in 1969 and 1982. However, the first attempt to enumerate the population through an organized census was as far back as in 1901 which was followed by a sequence of several censuses until 1961. These censuses and surveys were confined to the non-African population. It should be noted that the 1982 population census was the first one undertaken in independant Zimbabwe which has covered a broad range of topics concerning the total population. Through the National Household Survey Capability Programme a Demographic-Socio-Economic survey was undertaken and provincial reports based on manual tabulations were prepared for the eight provinces in Zimbabwe. The Child Spacing and Family Planning Council of Zimbabwe has recently carried out a contraceptive prevalence survey at National level in conjunction with the Central Statistical Office.

There has therefore been a concerted effort towards population data collection since independance. Plans are underway for an intercensal demographic survey to be conducted in 1986/87.

Since efforts have been directed towards basic data collection, very little has been done in the area of population projections. On what has been done the 1969 data was being used as a base. The analytical programme of the 1982 census however includes an ambitious population programme, details of which are given later in this paper.

The results of the successive censuses and national demographic sample surveys since the first inquiry in 1901 are summarized in the following table.

DE FACTO POPULATION BY RACE AT CENSUS AND SURVEY DATES

Date	European	Asian	Coloured	African (1)
1901, May 31st	11,032	1,093	--	--
1904, April 17th	12,596		1944(2)	--
1907, September 29th	14,007	--	--	--
1911, May 7th	23,606	870	2,042	--
1921, May 3rd	33,620	1,250	1,998	--
1926, May 4th	39,174	1,454	2,158	--
1931, May 5th	49,910	1,700	2,402	--
1936, May 5th	55,408	2,180	3,187	--
1941, May 6th	68,954	2,547	3,974	--
1946, May 7th	82,386	2,911	4,559	--
1948, August 31st	--	--	--	1,817,000(3)
1951, May 8th	135,596	4,292	5,991	--
1954, September	--	--		2,304,000(4)
1956, May 8th	177,124	5,127	8,079	--
1961, September 26th	222,504	7,253	10,559	--
1962, April 24th	--	--	--	3,618,150
1969, March 20th	228,296	8,965	15,153	--
April 29th	--	--	--	4,846,930

Source: Central Statistical Office - "Census of Population 1969" Government Printer Salisbury.

Note: -- Not enumerated.

(1) Prior to the 1948 Sample Survey the only data available on the African population were (i) estimates of indigenous population based on tax registers and (ii) from 1921, simple census details of the number of African employees, which distinguised between the indigenous and non-indigenous employees. Some rough estimates of the African population was required. This was achieved by using the existing Administrative machinery. The country was divided into two major provinces of Matebeleland and Mashonaland which in turn were divided into districts with the Native District Commissioners in charge of the districts. The Native District Commissioners made estimates of the total population in their districts from which a national total was arrived at.

Africans used to pay a hut tax and tax registers were kept by the Native Commissioner and the number of tax payers were related to the number of huts. The number of occupants per hut was worked out

at 3.5 to 4 people. The number of taxed huts was therefore raised by a factor to get the appropriate total population in each district (Reference: A Demographic Profile of Zimbabwe by David J.K. Mzite Canberra, January 1981). The original estimate of African population for 1901 from the tax records was a total of 787,200.

(2) Asians and Coloureds combined.

(3) Sample survey result relating to indigenous population of 1,587,100 plus an estimated 230,000 non-indigenous African employees.

(4) Sample survey result relating to indigenous population of 2,014,000 plus an estimated 290,000 non-indigenous African employees.

In brief the total populations enumerated at the three censuses were:

1962	1969	1982
3,857,470	5,099,340	7,546,071

Source: Table 1, 1969 Census Reports.

The population growth between 1962 and 1969 was 4.1 per cent per annum, while between 1969 and 1982 it was 3.1 per cent per annum.

The Central Statistical Office has made some population estimates based on the 1969 population as shown in the table below as published in our Quarterly Digest of Statistics.

POPULATION ESTIMATES

Every projection is made with the assumption that the country or area for which the projection is made will not experience a war or a natural calamity. Effects of future economic flactuations of a cyclic nature are considered to be either of remote possibility or unimportant.

In making the projections in Zimbabwe the mathematical method was used. This method is simple to apply and involve the use of mathematical formula directly to total population. So it is very useful where data are limited, for example they can be used where there is only the size of the total population at one or more censuses.

The mathematical method has a limitation in that it is not flexible enough to allow changes in the process. The mathematical method assume that population grows or declines at a constant rate. But, acceleration of slowing down of the rates are also possible.

In the Zimbabwean case projections were made by race as explained below and the projections given below were for the total population.

POPULATION ESTIMATES

A. National Total

	As at 30th June	As at 31st December
1901	710	
1910	880	
1920	1,130	
1930	1,430	
1940	1,940	
1950	2,730	
1960	3,840	
1970	5,310	5,400
1971	5,500	5,590
1972	5,690	5,780
1973	5,890	5,980
1974	6,080	6,180
1975	6,280	6,390
1976	6,490	6,600
1977	6,700	6,810
1978	6,920	7,020
1979	7,130	7,240
1980	7,360	7,480
1981	7,600	7,730

Source: Central Statistical Office - Quarterly Digest of Statistics December 1984 Harare.

Note: The total population recorded in the August, 1982, Census was 7,539,000 (provisional).

All figures in the above table are de facto figures which include temporary visitors and migrant workers but exclude normal residents temporarily absent from the country. The estimates are made up of two main components. (a) the African population and (b) the European, Asian and Coloured population.

Africans

The sample surveys of the African population in 1948 and 1954 indicated rates of natural increase of 2.8 per cent and 3.0 per cent respectively

while censuses of population in 1962 and 1969 showed natural increase rates of 3.4 per cent and 3.6 per cent respectively. Working backwards from the 1969 census and taking into account the 1948 to 1969 trend in the rate of natural increase, together with the number of foreign-born adult males recorded in the various censuses of employees dating back to 1921, it is estimated that the African population was at least 700,000 in 1901.

The estimates for the subsequent years are based on the assumption that the rate of natural increase was nil in the year following the 1918 influenza epidemic, but otherwise rose steadily from 1.5 per cent, in 1901 to 2.8 per cent, in 1948; to 3.0 per cent, in 1954; to 3.4 per cent in 1962; to 3.6 per cent in 1969, and has remained constant since then. Allowance is also made for migration of foreign-born persons.

Europeans, Asians and Coloureds

For Europeans, Asians and Coloureds estimates are based on various censuses of population the first of which was held in 1901 and the most recent in 1969.

In arriving at intercensal and post-1969 estimates of the European and Asian population, allowance is made for natural increase (i.e. excess of births over deaths), immigration and emigration.

As there are no satisfactory birth and death statistics for Coloureds and since migration for this group is negligible, the intercensal estimates are based solely on the average annual intercensal rates of increase. Similarly the post-1969 estimates are based on the 1961 to 1969 average annual rate of increase.

The United Nations (UN) has also made some population projections for Zimbabwe taking the 1969 population as the base. They used the component method of projecting the population from 1950 to 2025.

Population in Thousands (Medium Variant)

Year	Population
1950	2,415,000
1955	2,956,000
1960	3,605,000
1965	4,432,000
1970	5,308,000
1975	6,247,000
1980	7,396,000
1982	7,927,000
1985	8,805,000
1990	10,489,000
1995	12,465,000
2000	14,726,000
2005	17,238,000
2010	19,962,000
2015	22,822,000
2020	25,698,000
2025	28,435,000

Source: United Nations- Demographic Indicators of Countries. Estimates and projections as assessed in 1980. Page 97 New York 1982.

Three series high, medium and low were prepared and the results of the medium projection are presented below. Population was projected by 5 year age groups and sex. By using the model life tables survival ratios were calculated at the end of each five year period. The assumptions with regard to fertility, mortality and migration have not been stated by U.N. explicitly for each country but their publication (United Nations -"Demographic Yearbook" 1981) shows that for Africa a Crude Birth Rate (CBR) of 47.9 in 1950 - 1955 would decline to 25.5 per thousand by 2020 - 2025 and the corresponding decline in Gross Reproduction Rate (GRR) would be from 3.15 to 1.49. With regard to mortality it was assumed that the Crude Death Rate (CDR) of 27.4 per thousand 1950 - 1955 would decline to 6.5 in 2020 - 2025. The improvement in the level of life expectancy for the corresponding periods would be from 37.3 to 67.2 years. With regard to international migration for Zimbabwe it seems it was considered negligible.

The problems with the U.N. projections are: the base i.e. the 1969 Census is not very recent; the use of model life tables is not valid as the main component of population change is fertility; mortality has not been constant and the assumptions do not seem to be based on any scientific evidence.

THE 1982 POPULATION CENSUS

Due to computer problems and other unforseen delays in processing data for the 1982 Census a 10 per cent Sample was randomly selected. This was done to derive some of the national demographic parameters for immediate planning purposes. The 10 per cent sample was analyzed and some of the results obtained are given below for 1982.

Some Demographic Parameters estimated

	1982	Other Years
Crude Birth Rate (CBR)	39.48 per thousand	39.43 per thousand (1981)
Crude Death Rate (CDR)	12.3 per thoudand Male - 13.10 per thousand Female - 12.31 per thousand	
Sex Ratio	96	98 (1972)
Sex Ratio of Children ever born	1 01	
Gross Reproduction Rate (GRR)	2.8	2.9 (1981)
Gross Fertility Rate (GFR)	175.83 per thousand	175.98 per thousand (1981)
Total Fertility Rate (TFR)	5.6	6.60 (1980-85-UN)
Infant Mortality Rate (IMR)	Male - 93 per thousand Female - 73 per thousand Total - 83 per thousand	
Life expectancy at Birth (e_o^o)	Male - 55.70 years	49.1 years (1969)
	Female - 59.05 years	52.5 years (1969)
	Total - 57.4 years	50.8 years (1969)

Eight questions were asked in the 1982 population census from which mortality estimates can be derived. (see 1982 population census questionnaire attached at the back). The census information on mortality is deficient for deriving direct mortality estimates because the questions asked do not provide current data on mortality (i.e. the number of persons reported dead during a specific period). A high degree of under reporting is found in this data because people do not want to talk about sad events especially those which occurred recently. From the 1982 population census, data in Zimbabwe has a Crude Death Rate (CDR) of 12.3 per thousand for the total population. For the males the CDR is 13.10 per thousand whilst for females it's 12.31 per thousand. The total infant mortality rate (IMR) is 93 per thousand. Female IMR is 73 per thousand whilst the male IMR is 83 per thousand, compared with 101 per thousand for Africans in 1969. The mortality rate has declined since 1969. Males have a higher mortality rate than females and some of the reasons for this are that; males are more exposed to the risk of dying at work places than females and also biologically males are less healthy than females.

From the 1982 population census the Zimbabwe life expectancy at birth was found to be 57.4 years for both sexes as compared to that of 50.8 years in 1969. The life expectancy at birth for females has increased from 52.5 years in 1969 to 59.05 years in 1982 whilst that of males has increased from 49.1 years in 1969 to 55.70 years in 1982. For the total a rise of 6.6 years in life expectancy has been experienced. This is mostly due to the improvement of both health facilities and education in hygiene, diet etc.

In the absence of the complete coverage of vital statistics through the national registration system, attempt was made to collect birth statistics from the 1982 census. Questions to ascertain the number of children ever born to each women age 12 years and ever were asked. Also asked were the number of children she borne alive who died and sex and date of birth of the most recent born and information on whether this child was still alive were obtained. (See questionnaire attached).

The Total Fertility Rate (T.F.R.) has fallen from 6.60 in 1980-85 to 5.6 in 1982 as shown in the table above. The Crude Birth Rate (CBR) has also fallen from 39.43 per thousand in 1981 to 39.48 per thousand in 1981 but this is a very insignificant fall. Fertility level is on the decline in Zimbabwe probably due to the wide use of contraception to reduce of family size and to maintain the good health of mothers by spacing children.

Future Plan

Plans for the future will focus on viewing the entire demographic data for Zimbabwe. The Advance National report based on the 10 per cent sample will be published in due course. Other reports which the C.S.O. hopes to work on are:

(a) 8 Provincial Reports
(b) Reports on Harare and Bulawayo
(c) National Report
(d) Monograph Series with detailed analysis.

The C.S.O. will also work on some projections such as:

(a) Population by age, sex urban/rural.
(b) Population by age, sex urban/rural for each province.
(c) Population by age, sex for administrative areas.
(d) School age population at national and sub-national levels.
(e) Labour Force national and sub-national levels.

The production of tables and preparation of reports for each of the 8 Provinces and the two largest cities in Harare and Bulawayo are urgently needed by the government for sub-national/city planning and development. The projections of population by sex, age urban/rural for the country and its provinces and sectoral projections are also urgently required for national, sub-national and sectoral planning and also to bring general awareness among policy makers, planners and other functionaries concerned with the population matters of the short term and long term implications of the growth of population.

A new project has also been included in the future work plan. The object of including this research activity is to undertake a systematic attempt to assess the demographic impact of development planning. Research in this area is expected to provide the basis for co-ordinating the demographic, social and economic objectives of the development plan to achieve a balanced development.

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REPUBLIC OF ZIMBABWE — 1982 POPULATION CENSUS

HOUSEHOLD NUMBER | LOCAL AUTHORITY | ENUMERATION AREA NUMBER | NAME OF PLACE—VILLAGE, TOWN, SUBURB OR FARM | IF TOWN OR SUBURB, WRITE ADDRESS OR STAND NUMBER

		ALL PERSONS										PERSONS AGED TEN YEARS AND OVER		FEMALE AGED TWELVE YEARS AND OVER									
								EDUCATION				TYPE OF ACTIVITY LAST WEEK								PARTICULARS OF HER MOST RECENT LIVE BIRTH			
NAME Who stayed here last night? Write the names of all persons who stayed here last night	LINE No.	RELATIONSHIP TO HEAD How is this person related to the head of the household? State whether head, wife of head, son, daughter, other relative, not related	SEX What is this person's sex? Write M or F	AGE How old is this person? State age in completed years (in months if under one)	ETHNIC GROUP AND CITIZENSHIP Is this person a Zimbabwean? Zimbabwean Africans state father's dialect. Other Zimbabweans state ethnic group. Others state citizenship and ethnic group	BIRTH-PLACE Where was this person born? State district if born in Zimbabwe. State country if born outside Zimbabwe	PREVIOUS RESIDENCE Where was this person at this time last year? State district if in Zimbabwe. State country if outside Zimbabwe	SCHOOL ATTENDANCE Has this person ever been to school? State whether at school, left school, or never been	ATTAINMENT What is the highest academic level reached?	IS THIS PERSON'S FATHER ALIVE? Write yes or no	IS THIS PERSON'S MOTHER ALIVE? Write yes or no	MARITAL STATUS Is this person married? State whether never married, married, divorced, separated or widowed	DID THIS PERSON WORK LAST WEEK? Write yes or no	IF "YES"—WHAT KIND OF WORK? State occupation IF "NO"—WHAT WAS THE REASON? State whether housewife, student, unemployed, not working, too old, retired, disabled, visitor or as appropriate	OF THE CHILDREN THIS WOMAN HAS BORNE ALIVE, HOW MANY WERE HERE LAST NIGHT?		OF THE CHILDREN SHE HAS BORNE ALIVE, HOW MANY WERE ELSEWHERE LAST NIGHT?		OF THE CHILDREN SHE HAS BORNE ALIVE, HOW MANY HAVE DIED?		HOW OLD WAS SHE WHEN SHE BORE HER FIRST LIVE CHILD?	WHEN WAS THE CHILD BORN?		WAS IT MALE OR FEMALE?	IS THE CHILD STILL ALIVE?
															Male	Female	Male	Female	Male	Female	Age in years	Year	Month	Male or female	Yes or no
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
	01																								
	02																								
	03																								
	04																								
	05																								
	06																								
	07																								
	08																								
	09																								
	10																								

Write answers or place tick in appropriate box.

HOUSEHOLD PARTICULARS	MAIN MODE OF TRANSPORT TO WORK OF EMPLOYED PERSONS		TENURE STATUS	TYPE OF DWELLING				WATER-SUPPLY			TOILET FACILITIES		COOKING FACILITIES	
	Transport	Number of persons	Status of the head of the household	Housing other than municipal	Number of rooms	Municipal housing	Number of rooms	Source	Location: Within 100 m	Location: Beyond 100 m				
What language is usually spoken in this household?	Walking		Owner/Purchaser	Traditional		Hostel		Piped water inside house			Flush-toilet		Wood	
What is the religion of the head of this household?	Bicycle		Tenant	Mixed		Flat		Piped water outside			Pit-latrine		Paraffin	
Does this household have a radio?	Bus		Lodger	Detached		Cave		Well or bore-hole			None		Electricity	
	Car		In tied housing	Semi-detached		Extended cave		River or stream			Other—specify		Gas	
	Other—specify		Squatter	Flat or town house		Ultra-low cost		Other—specify					Other—specify	
			Other—specify	Hotel or lodging-house		Complete								
				Other—specify		Other—specify								

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